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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent application of:

) Date: April 12, 2006

Flavio M. Manduley

) Attorney Docket No.: F-157

Serial No.: 09/732,530

) Customer No.: 00919

Filed: December 8, 2000

) Group Art Unit: 3629

Confirmation No.: 4426

) Examiner: Michael J. Fisher

Title: **SYNCHRONIZATION METHOD AND APPARATUS IN A VALUE METERING  
SYSTEM HAVING A DIGITAL PRINT HEAD**

**TRANSMITTAL OF APPEAL BRIEF (PATENT APPLICATION 37 CFR 1.192)**

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Sir:

Transmitted herewith in **triplicate** is the **APPEAL BRIEF** in the above-identified patent application with respect to the Notice of Appeal filed on February 16, 2006.

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Respectfully submitted,

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In re patent application of:

) Attorney Docket No.: F-157

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Title:           SYNCHRONIZATION METHOD AND APPARATUS IN A VALUE  
                  METERING SYSTEM HAVING A DIGITAL PRINT HEAD

**APPELLANT'S BRIEF**

Mail Stop Appeal Brief-Patents  
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P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This brief is in furtherance of the Notice of Appeal filed in this case on February  
16, 2006.

**This brief is transmitted in triplicate.**

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**I. REAL PARTY IN INTEREST**

Pitney Bowes Inc. is the real party in interest by way of assignment from the Appellant.

**II. RELATED APPEALS AND INTERFERENCES**

There are no related Appeals and Interferences.

**III. STATUS OF CLAIMS**

A) Claims 1, 3, 5-11, 21, 22 and 29-33 are in the application.

B) Claims 1, 3, 5-11, 21, 22 and 29-33 are rejected.

C) Claims 1, 3, 5-11, 21, 22 and 29-33 are on appeal.

**IV. STATUS OF AMENDMENTS**

No Amendment subsequent to the November 18, 2005, Final Rejection has been entered.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

**A. Background**

**The prior art does not provide a value metering system that uses a digital print head capable of printing a plurality of printed lines on a substrate, which is displaced relative to the print head in a moving direction, wherein the lines are substantially perpendicular to the moving direction, and a first signal is provided after a line is printed.**

Manually-activated postage meters are well-known in the art. Typically, an envelope or a tape is manually fed under a print head for printing an indicium thereon. The print head is fixedly mounted in the postage meter, and a sensing device is used to sense the presence of the envelope under the print head. In order to print the indicium with minimum distortion, the speed of the envelope must be controlled to match the print speed of the print head. Thus, some mechanism must be used to synchronize the movement of the envelope to the print head. U.S. Patent No. 4,168,533 (Schwartz) discloses a micro-computerized miniature postage meter, wherein a microcomputer is used to actuate an inkjet printing device to project ink droplets onto a substrate moving relative to the printing device. In particular, the movement of the printing device relative to the substrate is detected by an encoded rotating wheel mounted on the lower contact

surface of the printing device. The rotating wheel is coupled to an interrupter disc, which is adapted to provide signal pulses for coordinating the proper time for actuating of the printing device. With such a design, the postage meter becomes costly to produce and to sell.

Thus, it is advantageous and desirable to provide a simple synchronization method and apparatus for use in a value metering system, such as a postage meter.

## **B. APPELLANT'S CLAIMED INVENTION**

**Appellant claims a apparatus for achieving synchronization in a value metering system using a digital print head capable of printing a plurality of printed lines on a substrate displaced relative to the print head in a moving direction, wherein the lines are substantially perpendicular to the moving direction, and a first signal is provided for indicating a line is printed**

Claim 1 is the only independent claim in this patent application. Appellants claimed invention is an apparatus for achieving synchronization in a value metering system. In particular, the value metering system uses a digital print head capable of printing a plurality of printed lines on a substrate displaced relative to the print head in a moving direction, wherein the lines are substantially perpendicular to the moving direction, and a first signal is provided for indicating a line is printed. Claim 1 includes the elements:

a first mechanism operable at a first position to restrict the displacement of the substrate and a second position to effectively disengage from substrate, wherein the first mechanism is operated at the first position when the print head prints a line;

a second mechanism, responsive to the first signal, for causing the first mechanism to operate at the second position thereby allowing the displacement of the substrate by a predetermined distance relative to the print head for printing a next line; and

a third mechanism, responsive to the displacement of the substrate, for providing a second signal, indicative of the displacement of the substrate by the predetermined distance, for causing the print head to print the next line, wherein the third mechanism comprises an optical sensor that restricts the movement of the print head by a distance substantially equal to the width of one print line.

Appellant's invention is shown in Figs. 4 and 6a – 6g, line 17 of page 7 to line 9 of page 8 and line 17 of page 9 to line 27 of page 10 of Appellants' Patent Application. A copy of Fig. 4 appears next to this page.

Figure 4 is a diagrammatic representation of manually activated postage meter **40**, wherein substrate **100** is manually displaced relative to print head **2** along direction **110**. As shown, postage meter **40** includes frame **41** to support upper body **42** and lower body **44**. Similar to housing **22** of hand-held postage meter **20**, as shown in Figure 4, upper body **42** includes user interface section **24**, print head **2**, print head control **4**, movement restraining means **6** and sensor **8**. The function of the components in upper body **42** is also similar to the function of the components in housing **22**, except that movement restraining means **6** in upper body **42** is used to restrict the movement of lower body **44** relative to upper body **42**. Preferably, upper body **42** is fixedly mounted to frame **41** and lower body **44** is movably mounted to frame **41**. Lower body **44** has registration wall **46**, which defines the point where print head **2** starts printing on substrate **100**. Lower body **44** further comprises supporting surface **48** to support substrate **100** as substrate **100** is moved into lower body **44**. Preferably, substrate **100** is secured or trapped in lower body **44** after it reaches registration wall **46**. Subsequently, a user can move lower body **44** along with substrate **100** along direction **110**. Sensor **8**, in cooperation with movement restraining means **6**, restricts the movement of lower body **44** such that lower body **44** is allowed to move by a distance substantially equal to the width of one print line **82** (Figure 2) after each line is printed. The restriction is removed after last line **84** (Figure 2) is printed.

Figures 6a – 6f are timing diagrams illustrating the time relationship between the print head, the print-head control, the movement restraining means and the sensor in a postage meter, with reference to time axis **T**, as shown in Figure 6g. As shown in Figure 6a, timing sequence **302** represents the print signal of the postage meter. The printing signal enables the print head at  $t=t_0$  after a substrate is properly fed into the postage meter (see Figure 5c, for example). From  $t_0$  to  $t_2$ , the print head prints a line on the substrate, as represented by the first pulse on time sequence **304**, as shown in Figure 3b. At the end of the line, the print head control conveys a signal to the movement restraining means, as indicated by the first pulse in time sequence **306** between  $t_1$  and  $t_2$ , as shown in Figure 3c. When print head **2** is printing, the movement

restraining means is activated, as indicated by the first pulse on time sequence **310** starting at  $t=t_0$ , as shown in Figure 6e. The movement restraining means is deactivated at  $t_2$ . Once the movement restraining means is deactivated, the substrate is allowed to move relative to the print head by a distance substantially equal to the width of a printed line. By then, the sensor activates the movement restraining means, as indicated by the first pulse on time sequence **312** between  $t_3$  and  $t_4$ , as shown in Figure 6f. Subsequently, the print head prints a new line starting at  $t_4$ , as shown in time sequence **304**. The print cycle repeats until the last line is printed. The last line is printed by the print head from  $t_n$  to  $t_{n+2}$ , as shown on time sequence **304**. A last line signal, as shown in time sequence **308** of Figure 3d, is provided to override the end of line signal (time sequence **306**) between  $t_{n+1}$  and  $t_{n+2}$ . The movement restraining means is not activated again after the last line is printed. The system is reset after a new substrate is fed into the postage meter for printing. The last line signal puts an end to the printing process, as indicated by the negative-going edge at  $t_{n+2}$  on time sequence **302**.

The method of synchronizing the print speed of a digital print head and the relative movement of a substrate is illustrated in flow chart **200** of Figure 7. As shown, the power switch of the postage meter is turned on at step **202**. The user is prompted to feed a substrate and to select or type in data for printing at step **204**. The print head is activated or enabled at step **206** and the movement restraining means is activated at step **208** to restrict the relative movement between the substrate and the print head. The print head starts printing a line at step **210**. When the printed line is completed, as shown at step **212**, the movement restraining means is de-activated at step **214**. If the printed line is not the last line, the sensor activates the movement restraining means at steps **218** after the substrate has moved into a new position for printing the next line. If the printed line is the last line, the user is prompted to feed a new substrate and to specify the data for printing the new substrate.

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

A. Claims 1 and 3 have been rejected by the Examiner under 35 USC §103(a) as being clearly anticipated by either Belson et al. (3,644,806) or Riley (3,917,048) or Kondo (4,971,466).

B. Claims 5 & 6 have been rejected by the Examiner under 35 U.S.C. § 103(a) as being clearly anticipated by either Riley (3,917,048) or Kondo (4,971,466).

C. Claims 7-11, 21,22 & 29-33 have been rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over either Belson et al (3,644,806) or Riley (3,917,048) or Kondo (4,971,466) as applied to claims 1-3, 12-17 & 23-27 above and further in view of obvious modifications.

## **VII. ARGUMENTS**

**A. Claims 1 and 3 have been rejected by the Examiner under 35 USC §103(a) as being clearly anticipated by either Belson et al. (3,644,806) or Riley (3,917,048) or Kondo (4,971,466).**

Belson discloses the following in column 1, lines 8-34:

"The vast amount of printed output generated by today's high-speed computers has created a demand for ever faster printer devices. Traditionally, these devices print a line and then advance the paper one or more lines and print another line. Ideally, consecutive lines should be identically spaced with characters, all of which are not simultaneously printed, in a straight line. To speed operation, each line must be printed and the paper transported between printed lines as rapidly as possible.

One traditional approach to computer print-outs has been to use a cylindrical rotating drum of type front above the paper, in conjunction with a set of selectively activated hammers behind the paper to strike the paper against a marking ribbon in order to impress the shape of the character on the drum upon the front of the paper. The rotating drums usually have one row for each character with the identical character in each hammer position. The drum is continually rotated at high speed. Selected print hammers are activated to print all like characters in a given line simultaneously. To prevent character smearing and to have different characters aligned, the paper must be stopped and held during the printing operation. Thus, the basic operation of the apparatus is to move the paper to a new line, stop, and retain the paper precisely in place while the type drum is allowed to revolve at least enough so that all desired characters have passed under the print hammers."

Riley discloses the following in column 1, lines 6-10:

"This invention relates to a perforated web advancing apparatus and, more particularly, to a synchronized line feed tensioning and



gripping apparatus particularly adapted for use with sprocket or tractor feed mechanisms employed in printers and the like.”

Kondo discloses the following in the abstract:

“There is described a printing apparatus in which line feed is achieved by rotating a platen with a paper advancing motor and the printing is conducted while the platen is stopped by the paper advancing motor. The printer is further provided with a detent mechanism for stopping the platen at the interval of a determined angle, and a solenoid for deactivating the function of the detent mechanism.”

Belson, Riley, or Kondo, taken separately or together, do not disclose or anticipate the invention claimed by Appellant in claim 1, and those claims dependent thereon. The cited patents do not disclose or anticipate a third mechanism, responsive to the displacement of the substrate, for providing a second signal, indicative of the displacement of the substrate by the predetermined distance, for causing the print head to print the next line, wherein the third mechanism comprises an optical sensor that restricts the movement of the print head by a distance substantially equal to the width of one print line.

The Examiner also stated the following in page 3 of the November 18, 2005, Final Rejection.

“Belson, Riley or Kondo do not, however, teach a third mechanism responsive to the displacement. It would be inherent that they ensure that the printhead lines up in the proper place to ensure that the printing is even. It is well within the purview of one of ordinary skill in the art to duplicate parts that do the same function (St. Regis Paper Co. v. Bemis Co., 193 USPQ8).”

The Examiner has misconstrued the St. Regis Paper Co. v. Bemis Co. case, nowhere in the decision does the court advance the proposition that “It is well within the purview of one of ordinary skill in the art to duplicate parts that do the same function.”

The court held at page 12 in the St. Regis Paper Co. v. Bemis Co. Inc. decision the following:

“The concept of stepping the plies of a multilayered bag is revealed in Windmoller and Holscher French patent 1,227,176. See Appendix B. While the Windmoller bag was not gusseted and did not call for the stepping of all the plies, the transition from the

Windmoller bag to one which was gusseted and had all of the plies stepped was not difficult one for one skilled in the art of manufacturing bags. Moreover, the transition from the Lokey bag to the reissue bags would not have required great inventive flair to a person skilled in the art. The stepping of all of the plies was the work of a skillful mechanic rather than an inventor, and therefore their incorporation in the reissue bags is not entitled to patent projection under the standard of Hotchkiss v. Greenwood."

The Examiner also misinterpreted the doctrine of inherency when he stated "It would be inherent that they ensure that the print head lines up in the proper place to ensure that the printing is even."

The United States Court of Appeals for the Federal Circuit discussed inherency in *Elan Pharmaceuticals Inc. v. Mayo Foundation* 64 USPQ2d 1292, 1296 as follows:

"To be patented an invention must be new. 35 U.S.C. § 101, 102(a), (e). If it is not new, that is, if it was known to others, it is said to be "anticipated." *Hoover Group, Inc. v. Custom Meraircraft, Inc.*, 66 F.3d 299, 302, 36 USPQ2d 1101, 1103 (Fed. Cir. 1995) ("lack of novelty (often called 'anticipation') requires that the same invention, including each element and limitation of the claims, was known or used by others before it was invented by the patentee"). Anticipation is a question of fact, as is the question of inherency. *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). Its proof differs from that for obviousness, 35 U.S.C. § 103, in that prior knowledge by others requires that all of the elements and limitations of the claimed subject matter must be expressly or inherently described in a single prior art reference. *In re RobertsOn*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999); *Constant v. Advanced Micro-Devices, Inc.*, 848 E2d 1560, 1571, 7 USPQ2d 1057, 1064 (Fed. Cir. 1988). The single reference must describe and enable the claimed invention, including all claim limitations, with sufficient clarity and detail to establish that the subject matter already existed in the prior art and that its existence was recognized by persons of ordinary skill in the field of the invention. *Crown Operations International, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1375, 62 USPQ2d 1917, 1921 (Fed. cir. 2002); *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990) ("the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it"). The anticipating reference "must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter." *PPG industries, Inc. v.*

Guardian Industries Corp., 75 F.3d 1558, 1566, 37 USPQ2d 1618, 1624 (Fed. Cir. 1996). When anticipation is based on inherency of limitations not expressly disclosed in the assertedly anticipating reference, it must be shown that the undisclosed information was known to be present in the subject matter of the reference. Continental Can Co. USA, Inc. v. Monsanto Co., 948 F.2d 1264, 1269, 20 USPQ2d 1746, 1749-50 (Fed. Cir. 1991). An inherent limitation is one that is necessarily present; invalidation based on inherency is not established by "probabilities or possibilities." Scaltech, Inc. v. Retec/Tetra, LLC., 178 F.3d 1378, 1384, 51 USPQ2d 1055, 1059 (Fed. Cir. 1999). "

The cited patents do not inherently disclose appellants claimed third mechanism, namely a third mechanism, responsive to the displacement of the substrate, for providing a second signal, indicative of the displacement of the substrate by the predetermined distance, for causing the print head to print the next line, wherein the third mechanism comprises an optical sensor that restricts the movement of the print head by a distance substantially equal to the width of one print line.

Notwithstanding the foregoing, in rejecting a claim under 35 U.S.C. §103, the Examiner is charged with the initial burden for providing a factual basis to support the obviousness conclusion. *In re Warner*, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967); *in re Lunsford*, 375 F.2d 385, 148 USPQ 721 (CCPA 1966); *in re Freed*, 425 F.2d 785, 165 USPQ 570 (CCPA 1970). The Examiner is also required to explain how and why one having ordinary skill in the art would have been led to modify an applied reference and/or combine applied references to arrive at the claimed invention. *In re Ochiai*, 37 USPQ2d 1127 (Fed. Cir. 1995); *in re Deuel*, 51 F.3d 1552, 34 USPQ 1210 (Fed. Cir. 1995); *in re Fritch*, 972 F.2d 1260, 23 USPQ 1780 (Fed. Cir. 1992); *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). In establishing the requisite motivation, it has been consistently held that both the suggestion and reasonable expectation of success must stem from the prior art itself, as a whole. *In re Ochiai*, *supra*; *in re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); *in re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *in re Dow Chemical Co.*, 837 F.2d 469, 5 USPQ2d 1529 (Fed. Cir. 1988).

**B. Claims 5 & 6 have been rejected by the Examiner under 35 U.S.C. § 103(a) as being clearly anticipated by either Riley (3,917,048) or Kondo (4,971,466).**


Riley and Kondo have been discussed in above Section A and the arguments for the patentability of dependent claims 5 and 6 appear in above Section A

**C. Claims 7-11, 21,22 & 29-33 have been rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over either Belson et al (3,644,806) or Riley (3,917,048) or Kondo (4,971,466) as applied to claims 1-3, 12-17 & 23-27 above and further in view of obvious modifications.**

Belson, Riley and Kondo have been discussed in above Section A and the arguments for the patentability of the above dependent claims appear in above Section A.

Appellants respectfully submit that appealed claims 1, 3, 5-11, 21, 22 and 29-33 in this application are patentable. It is requested that the Board of Appeal overrule the Examiner and direct allowance of the rejected claims.

Respectfully submitted,



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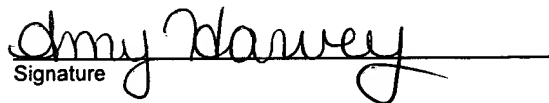
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## VIII APPENDIX OF CLAIMS INVOLVED IN THE APPEAL

1. An apparatus for achieving synchronization in a value metering system using a digital print head capable of printing a plurality of printed lines on a substrate displaced relative to the print head in a moving direction, wherein the lines are substantially perpendicular to the moving direction, and a first signal is provided for indicating a line is printed, said apparatus comprises:

a first mechanism operable at a first position to restrict the displacement of the substrate and a second position to effectively disengage from substrate, wherein the first mechanism is operated at the first position when the print head prints a line;

a second mechanism, responsive to the first signal, for causing the first mechanism to operate at the second position thereby allowing the displacement of the substrate by a predetermined distance relative to the print head for printing a next line; and

a third mechanism, responsive to the displacement of the substrate, for providing a second signal, indicative of the displacement of the substrate by the predetermined distance, for causing the print head to print the next line, wherein the third mechanism comprises an optical sensor that restricts the movement of the print head by a distance substantially equal to the width of one print line.

3. The apparatus of claim 2, further comprising a fourth mechanism, responsive to a last line, for providing for preventing the first mechanism from further operating at the first position after the last line is printed.

5. The apparatus of claim 1, wherein the substrate is displaced by a roller, and the first mechanism comprises a latching mechanism operatively connected to the roller for restricting the roller from movement when the first mechanism is operated at the first position.

6. The apparatus of claim 5, wherein the first mechanism further comprises a gear mechanically linked with the roller for movement, and wherein the gear has a plurality of gear teeth and the latching mechanism is capable of engaging the gear teeth for restricting the movement of the gear.

7. The apparatus of claim 1, wherein the value metering system is a counter-top system.
8. The apparatus of claim 1, wherein the value metering system is a hand-held system.
9. The apparatus of claim 1, wherein the value metering system comprises a postage meter.
10. The apparatus of claim 1, wherein the substrate is manually displaced.
11. The apparatus of claim 1, wherein the substrate is displaced by a movement device.
21. The method of claim 1, wherein the value metering system comprises a ticket printer.
22. The method of claim 1, wherein the value metering system comprises a coupon printer.
29. The value-metering system of claim 9, wherein the substrate comprises an envelope for mailing.
30. The value-metering system of claim 9, wherein the substrate comprises a tape for printing an indicium.
31. The value-metering system of claim 9, wherein the print head is adapted to printing an indicium.
32. The value-metering system of claim 9, wherein the print head is adapted to printing an address on the substrate for mailing.

33. The value-metering system of claim 9, wherein the print head is adapted to printing a message on the substrate.

IX. EVIDENCE APPENDIX

There is no additional evidence to submit.



## X. RELATED PROCEEDING APPENDIX

There are no related Appeals and Interferences.